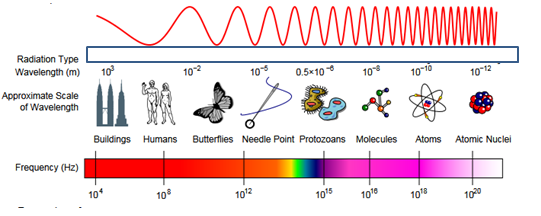
Review – Light

1. In the electromagnetic sprectrum below, there are seven different electromagnetic waves, fill in the correct blank for each based on their wavelength and frequency.



A.\_\_\_\_\_\_ B. \_\_\_\_\_ C. \_\_\_\_\_\_D. \_\_\_\_\_\_\_E.\_\_\_\_\_\_F.\_\_\_\_\_\_G.\_\_\_\_\_\_\_

1. Using the primary colors of light as the 3 larger circles, fill in all the outcome colors of adding light.
2. The angle of incidence (the angle the light hits the medium) from air to an unknown material is 67 degrees, if the angle of refraction in the material is 40º what is the index of refraction for this material (n = 1 for air )?
3. The angle of incidence from air to a material is 49 degrees, what is the index of refraction in the material if the angle is 23º?
4. The angle of incidence from water (n=1.33) to a material is 61 degrees, what is the index of refraction in the material if the angle is 82º?
5. The angle of incidence from air to water is 32 degrees, what is the angle of refraction in the water?
6. If the light is coming from plastic (n=1.42) to the air, what is the critical angle?
7. Determine the unknown angle of incidence if the light ray is going from plastic (n=1.42) to water (n=1.33) and has a refraction angle of 58º.
8. In a plane mirror, describe the characteristics of the image relative to the object?
9. Sketch ray diagrams for the following mirrors and state if the images are UPRIGHT or INVERTED, and REAL or IMAGINARY

a.

r f

b.

r f

c.

r f

d

f r

1. Draw ray diagrams for the following lenses mirrors and state if the images are UPRIGHT or INVERTED, and REAL or IMAGINARY

a.

r f f r

b.

r f f r

c.

r f f r

1. Fill in the missing information for lenses and mirrors in the table below. All measurements are in cm.
2. Concave mirror

R = 10cm Do = 12 cm Ho = 3 cm

1. Concave mirror

R = 10cm Do = 8 cm Ho = 3 cm

1. Concave mirror

R = 10cm Do = 4 cm Ho = 3 cm

1. Convex mirror

R = 10cm Do = 12 cm Ho = 3 cm

1. Converging lens

R = 10cm Do = 8 cm Ho = 3 cm

1. Converging lens

R = 10cm Do = 4 cm Ho = 3 cm

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mirror or lens type | Radius | Focal length | Do | Ho | Di | Hi | Upright/ inverted | Smaller/ larger | Real/ virtual |
| a |  |  |  |  |  |  |  |  |  |  |
| b |  |  |  |  |  |  |  |  |  |  |
| c |  |  |  |  |  |  |  |  |  |  |
| d |  |  |  |  |  |  |  |  |  |  |
| e |  |  |  |  |  |  |  |  |  |  |
| f |  |  |  |  |  |  |  |  |  |  |